

NWIFC News



Northwest Indian Fisheries Commission

Spring 2006

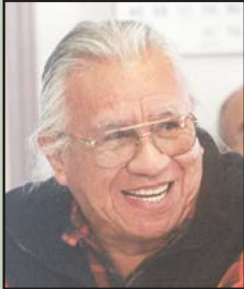
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Listen To The Salmon

By
Billy Frank Jr.
Chairman



I recently turned 75 – time for me to think about what to do with the *next* half of my life.

But seriously, everyone who knows me knows I'll continue to fight, to the last breath, to help restore salmon to the rivers of the Pacific Northwest – at harvestable levels. If I am remembered by anyone in future generations, let it be as a fisherman.

Cutting back our fisheries so sharply over the past quarter century to protect declining runs has been painful to Northwest Indians. The salmon's decline has in no way been the fault of the tribes, but because our historic roots run so deep here we feel an ongoing responsibility, to our ancestors and the generations to come, to help solve the problem.

Tribes have worked hard to protect the salmon and their habitat. We've also worked hard to share our environmental history, so people can more fully understand our long held legacy of Northwest stewardship. But with the population of our region expanding so dramatically, education of the masses is a mammoth undertaking.

Some people still think fishing is little more than a leisure activity, but it is so much more. Salmon fishing is the true heritage of the Northwest. It has been our lifeblood for a thousand generations.

Throughout time, we have known that when harvestable runs of salmon return to Northwest rivers, it means good health and vitality to all who live here. It also means we have been respectful to the land. Teaching that ethic to the millions of newcomers has been no easy task. But I, for one, will keep trying.

Salmon are far more important to you, whoever you are, than the construction of new housing developments or box stores. They are far more important than oil-filled supertankers, the clearing of more forests or even the expansion of the freeway system. When salmon fill the rivers, the coastal waters and the Sound, they carry a message of sustainable prosperity, well-being and cultural strength – for everyone.

Those who learn to listen to the world that sustains them can hear the message brought forth by the salmon. The message is the same as it has always been – respect Mother Earth and Father Sky and they will continue to sustain you, and your children, forever. Pursue a vision of harmony, rather than bow to greed for short-term gains at the expense of long-term well being, and your descendants will inherit a world filled with beauty and sustenance.

Fishing has defined the spirit of this region far longer than most can imagine. Reducing harvest even more is not the answer to bringing the fish back. We need to increase the runs, so harvest can return. Doing that takes spawning and rearing habitat. I have known my entire life that salmon were created to sustain all living things and that they serve as a measuring stick of our present and future physical and spiritual health.

If you learn to listen to the salmon, and to respect them, you learn to respect yourself.

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On The Cover: A cow elk munches on skunk cabbage. Like all wildlife, elk are vital to the treaty Indian tribes in western Washington. See related stories on pages 8-9. *Photo: D. Preston*

Hank Adams Receives ‘Visionary’ Award

Hank Adams, Assiniboine-Sioux tribal member and a key player in the state/tribal struggle that led to the *U.S. v. Washington* (Boldt) ruling in 1974, was honored with the American Indian Visionary Award in Washington D.C. on March 1.

Adams, who resides in Olympia, is the third recipient of the award presented by Indian Country Today, a nationwide tribal newspaper. NWIFC Chairman Billy Frank, Jr. was the first-ever recipient in 2004, followed by the late tribal author and statesman Vine Deloria Jr. in 2005.

“The award recognizes Hank Adams’ qualities of vision, courage, commitment and discipline – but it was Mr. Adams’ quiet modesty or natural humility that was found most admirable,” the editors of Indian Country Today said. “In important ways, Hank Adams represents – beyond himself – the existence and presence of that whole range of wonderful people who quietly sacrificed for American Indian causes and whose names are hardly known: not the ones ‘out front’ before cameras and pictures, but leaders substantial and crucial who toiled and endured quietly for the good of the people.”

An estimated 200 tribal leaders and other dignitaries were on hand for the presentation of the plaque, which applauded Adams “for his spirited devotion to the vision of a greater Indian America and his tireless defense of Indian rights” and applauded him as “a true visionary whose contributions have advanced the rights and freedoms of American Indians.”

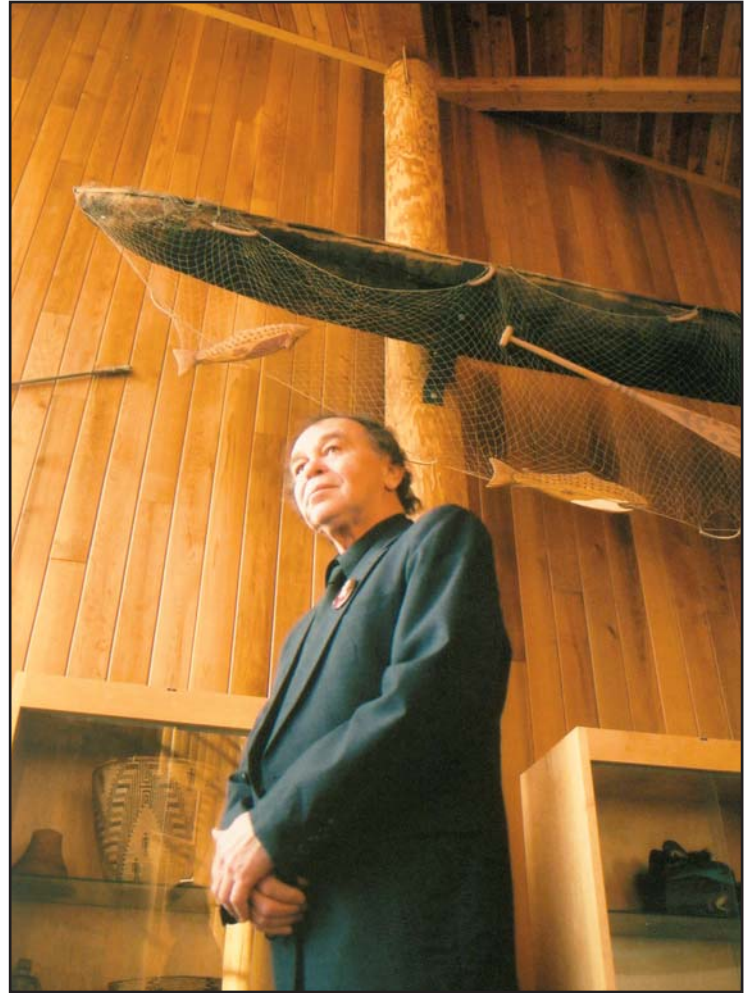
Adams was born in 1944 on the Fort Peck Indian Reservation in Montana. He graduated in 1961 from Moclips High School on the Washington coast, where he was student-body president, editor of the school newspaper and yearbook, and a starting football and basketball player.

‘His advocacy has led us well.’

– Billy Frank Jr.,
Chair,
NWIFC

In 1968, Adams became the director of the Survival of American Indians Association, a group dedicated to the treaty fishing rights struggle. Adams was regularly arrested, jailed and survived a gunshot wound for his actions between 1968 and 1971. He continued his efforts as the fight moved to the courts and resulted in the 1974 ruling that re-affirmed the tribes’ treaty-reserved fishing rights and role as co-managers with the State of Washington.

Stories of Adams’ contributions through the years were relayed by speakers ranging from Congressman Norm Dicks to Quinault Indian Nation President Pearl Capoeman-Baller. NWIFC Chairman Billy Frank Jr. told of a time in the turbulent 1960s when a newsman asked if Indians believe they have a right to destroy the last fish. Adams had replied, “No one has



Hank Adams, a central figure in the treaty fishing rights struggle, received the 2006 American Indian Visionary Award from Indian Country Today. Photo: E. O’Connell

that right. The first right is with the salmon resource. The issue is not ‘the last fish,’ but the state’s allowing non-Indians to catch 13 million salmon last year while throwing Indians into jail for catching any – and prohibiting some treaty tribes from harvesting any salmon or steelhead at all.”

In his acceptance speech, Adams testified to the contributions of Indian women who are wholly unknown to a larger public. “They gave their lives to the efforts of Indian people locally, nationally, hemispherically, and they had to postpone their dreams,” he said.

An Indian Country Today editorial observed that Adams was always one to take the high road, to assert the right of tribal members to define themselves, and to tell their own story. He also always advocated seeking direction and advice from elders.

“Hank was always a visionary,” said Frank. “He was always the architect of our actions and plans. His advocacy has led us well.” – S. Robinson

Tribe Works To Stem Effects Of Huge Landslide

A cataclysmic late January landslide on the Stillaguamish River caused flooding that threatened homeowners and harmed critical salmon habitat. The Stillaguamish Tribe, working with state, federal and county agencies, is playing a substantial role in follow-up efforts to protect people and preserve fish habitat.

Tons of dirt and rock gave way from a hillside at Steelhead Haven, a site on the North Fork of the Stillaguamish River a few miles east of Oso. This sediment plugged the river, creating flood conditions.

“With the waters continuing to rise,” said Pat Stevenson, environmental manager with the Stillaguamish Tribe, “the only way we were going to stop the flooding was to create a channel to let some of the flow out.”

Working with Snohomish County and the U.S. Army Corps of Engineers, the tribe excavated an overflow channel to drain the small lake that had been formed by the blockage. The waters threatened between 15-20 homes at the river’s edge, but the overflow channel helped the flood dissipate slowly, but steadily.

“Then,” said Stevenson, “the rains came.”

A powerful winter storm gave strength to the rushing water, with four inches of rain in a 24-hour period quickly expanding the newly-dug channel.

Fortunately, houses alongside the river were spared. One man lost his shed and pumphouse, but mercifully kept his home.

The fate of the area’s salmon is less clear.

All salmon species, including steelhead and sea-run cutthroat trout, rely on this area of the North Fork. The tribe’s past surveys have shown chinook spawning above, below and around the slide site. Salmon managers worry that silt will smother salmon nests, also known as redds, and devastate future generations of fish.

“We’re very worried about the consequences for salmon habitat – sediment can entomb salmon redds and fill up the deep pools where fish rest,” said Shawn Yanity, chairman of the Stillaguamish Tribe. “Further erosion could also make the river wider and shallower, increasing the risk of higher water temperatures, which are harmful to salmon.”

How bad the ultimate effects are, Stevenson said, depends on how much further erosion occurs over the coming year. In 1967, a similar slide fouled the river in the same fashion. Eyewitnesses from that time have told tribal officials that this slide is even bigger.



A landslide at Steelhead Haven on the Stillaguamish River devastated fish habitat and threatened area homes.

Photo: Snohomish County Public Works

Before the landslide even occurred, the tribe had plans in place to guard against these types of events. In the next year, the Stillaguamish will place a wood structure between the hill slope and the river, preventing slides and enhancing fish habitat. The project is currently in the permitting phase. – J. Shaw



Happy Birthday, Billy

Hundreds of well-wishers gathered recently to help celebrate NWIFC Chairman Billy Frank, Jr.’s 75th birthday. Frank promised to stick around for at least another 50 years to carry on his work on behalf of the tribes and the natural resources of the region. *Photo: Terry Williams*

QIN Steelhead Fuel Tribal, Sport Fisheries

Marty Figg, Quinault Indian Nation (QIN) hatchery manager, remembers the early days of catching steelhead with a fishing pole to obtain fish eggs to rear for the Lake Quinault Hatchery. "Fishing every day with a pole as part of your job isn't as romantic as some fishermen might imagine," Figg said with a chuckle.

That was 34 years ago, when QIN strived to obtain and rear 30,000 to 40,000 steelhead eggs. Now, hatchery personnel catch the fish with a net and collect more than 500,000 eggs to rear before releasing young fish in the Quinault and Salmon River watersheds. "We are really proud of our returning adults," said Figg. "We get fish back weighing anywhere from 8 to 30 pounds."

Rearing hatchery steelhead is only a part of the tribe's comprehensive steelhead management program. As co-manager of the salmon resource, QIN fisheries personnel survey the Queets and Quinault watersheds as well as half of the Chehalis watershed for returning fish and egg nests (redds). Salmon habitat improvement projects increase fish numbers while providing fishing opportunity for tribal and non-tribal fishermen.

Culturally, steelhead are an important part of ceremonies and everyday life and have been for thousands of years. Economically, tribal members fish commercially for steelhead and have the opportunity to provide fishing guide service to non-tribal members on the lower Quinault, Raft and Salmon rivers.

"My clients really enjoy the fishing opportunity we provide," said John Bryson, QIN tribal member, fishing guide and fisheries technician. "There are fewer fishermen on our rivers com-



Anthony Hobucket, Quinault Indian Nation fisheries technician, prepares a steelhead for spawning at QIN's Lake Quinault Hatchery.

Photo D. Preston

pared to some rivers on the Olympic Peninsula and there's a good chance of seeing wildlife such as elk or bear."

Bryson, as a fisheries technician for QIN off-and-on for a decade, logs the location and number of salmon redds in many of the watersheds where he fishes. "I've done other jobs for the QIN, but fisheries work is my favorite – I wanted to come back to it after being away for a couple of years.

"It's gratifying to see that the work that we do benefits fish and people too." – D. Preston

Young Puyallup Steelhead Share Their Travel Secrets

The Puyallup Tribe of Indians is implanting tiny transmitters into juvenile steelhead to track the young fish as they make their way out to the ocean.

"Puyallup River steelhead, along with most stocks of Puget Sound steelhead, have been in a deep decline for years," said Russ Ladley, resource protection manager for the Puyallup Tribe. "This project will give us important new information to guide us in bringing Puyallup steelhead back in strong numbers." Puyallup River steelhead are part of a stock that is currently being considered for listing under the federal Endangered Species Act.

The tribal effort is part of the joint U.S. and Canadian Pacific Ocean Shelf Tracking Project. An array of acoustic receivers

located throughout Puget Sound will track the fish as they begin their ocean migration. When a steelhead carrying an acoustic transmitter passes between a pair of receivers, its individual frequency is recorded and tracked for several hundred yards.

Harvest of Puyallup River steelhead has been practically non-existent for the last 10 years. "Obviously harvest isn't the reason steelhead have continued to decline, so we assume that there is a habitat problem facing these fish," said Ladley. "We don't know what happens to them when they leave for the ocean. If there is a problem out there, this information will help us figure that out."

The young fish are being collected in a smolt trap the tribe operates on the mainstem Puyallup River. A smolt trap is a safe and effective device for collecting and counting juvenile salmon.

"With acoustic tags, you can track many parts of a steelhead's life in saltwater, such as where they might be feeding or how fast they travel through a particular area," said Ladley.

"This project will show us where steelhead go when they leave the Puyallup River," said Ladley. "With better information, we'll have a better idea how to recover these fish." – E.O'Connell



Heavy equipment was needed to pull a junk car out of the Elwha River west of Port Angeles. *Photo: Lower Elwha Klallam Tribe*

Lower Elwha Klallam Tribe Sparks Cooperative Cleanup

Like many places on the Olympic Peninsula, a chunk of Elwha River floodplain west of Port Angeles had become a dumping ground for derelict cars and garbage that also attracted criminal activity.

"We do a lot of fish surveys in the lower river and we noticed about three summers ago that area had become a four-wheel drive playground and a dumping ground for derelict vehicles and household garbage," said Raymond Moses, project biologist for the Lower Elwha Klallam Tribe. "TVs, motorcycle and car parts, appliances and all manner of household garbage from the area were getting washed downstream from the site during high flows."

An abandoned private residence in the area was a magnet for parties, trash and even possible drug manufacturing. Adding to the difficulties of addressing the problem is the patchwork land ownership in the area. Private timber company Green Crow, the Washington Department of Fish and Wildlife (WDFW), and the City of Port Angeles all own property in the site.

The tribe sought help from the landowners to install a gate to restrict access and clean up the site. "We didn't get any assistance from the WDFW land management division for assistance to clean up or provide solutions to the problem," said Mike McHenry, fisheries habitat manager for the tribe. "Green Crow, however stepped up and shared the cost with the tribe to install a locked gate to restrict vehicle access last summer. That has prevented any new dumping."

Tribal fisheries technicians recently corralled 11 junk vehicles into a central area for removal by a tow truck. The entire cost of towing the vehicles to the scrap yard was paid for by the tribe.

Green Crow will work with the City of Port Angeles to remove additional garbage on the site, said Dennis Yakovich, manager of Green Crow properties.

The tribe hopes that WDFW and Clallam County will consider creating a parking area in the vicinity to help provide foot access to fishing spots. "Our objective was to stop the dumping and floodplain damage, not to prevent people from fishing. It's a short walk from the gate to fish, but a designated parking area would be great," said McHenry. "The one-way bridge near the site will be replaced in 2006 and represents an excellent opportunity to provide such facilities." — *D. Preston*

Scope Of Input Expanded On Makah Whaling

The National Marine Fisheries Service (NMFS) has expanded the scope of the environmental impact statement (EIS) resulting from the Makah Tribe's request for a waiver under the Marine Mammal Protection Act (MMPA) to exercise their treaty right to harvest gray whales.

Two years ago, a federal appeals court acknowledged the tribe's treaty right to whale. However, the court ruled that the tribe must comply with the MMPA and obtain a waiver from NMFS before it can proceed with a hunt. The ruling came despite a statement in the MMPA that nothing in the act is intended to abrogate any treaty-reserved right.

During the EIS comment period in late 2005, NMFS received input asking that the effects of issuing quotas to the Makah under the domestic Whaling Convention Act also be addressed in the same EIS addressing the effects of taking gray whales under a waiver of the MMPA. Should the Makah be granted a waiver, their hunts would be conducted with a permit issued by NMFS under the Whaling Convention Act, as was the case during the tribe's successful hunt in 1999.

Internationally, the tribe shares a quota with Russian indigenous peoples for gray whale harvest issued by the International Whaling Commission. That five-year quota is up for renewal in 2007.

"We would definitely rather get all these domestic issues addressed in the same EIS instead of separate, time-consuming processes and documents, even if it takes a little longer up front," said Dave Sones, vice president of the Makah tribal council.

The deadline for additional comments on the expanded scope of the EIS was March 29. Other materials regarding the tribe's request can be found at: www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Gray-Whales/Makah-Whale-Hunt.cfm

— *D. Preston*

Tribe Uses New Egg Rearing Technology

The Makah Tribe's cutting-edge salmon egg incubation equipment at its Hoko River hatchery is non-descript in appearance. Inside what looks like a double wide freezer, however, is a radical departure in salmon egg rearing technology.

The moist air incubation unit showers salmon eggs with a constant fog-like mist to keep the eggs moist but not immersed in water like traditional egg incubation practices.

"Salmon eggs will develop and hatch even on a concrete floor as long as the outer membrane is kept moist, according to the developers of this mist incubator technology," said Joe Hinton, hatchery manager for the Makah Tribe. "They found you just don't need a lot of water to do the job in the first several months of development.

"This unit uses a lot less water both because it delivers a mist of water rather than a constant stream and because the water is recycled after being treated by ultraviolet radiation. The ultraviolet treatment also reduces the amount of chemicals you have to use to treat fungus on the eggs," Hinton said.

The \$13,000 mist incubator will allow the tribe to rear 500,000 Hoko River chinook eggs using 5 gallons of water a day instead of the 60 gallons a minute that typical rearing conditions would require. Normally, eggs are laid out in trays and immersed in a constant flow of water. Chinook eggs will be in the mist incubator for 70 days, followed by another required 60 days in more traditional trays for their final development.

The chinook stock is depressed but recovering, according to tribal biologists. The Makah haven't fished for Hoko chinook for more than 20 years while continuing efforts to enhance habitat and rear a portion of the eggs from a mix of hatchery and wild adults to improve the survival of the stock.



Joe Hinton, hatchery manager for the Makah Tribe, checks a test batch of steelhead eggs in a mist incubator that keeps eggs moist rather than immersing them in water.

Photo: D. Preston

'This mist system solves the water issues.'

*– Joe Hinton
Hatchery Manager,
Makah Tribe*

Wright's Creek, a tributary to the Hoko River, is the fickle and sediment-laden supplier of water to the hatchery. Too much sediment can smother salmon eggs and it hasn't been possible to consistently reduce the sediment in the water supply. Finding a suitable well site to supplement the creek has proven difficult. "This mist system solves the water issues," said Hinton.

Because the system allows precise control of water temperature, the tribe can use the mist incubators to create a mark on the chinook's ear bone to create distinct groups.

"We've been releasing hatchery reared Hoko chinook in the upper watershed where traditional suitable habitat exists but is underutilized," said Caroline Peterschmidt, project biologist for the Makah Tribe. "The mist incubator allows us to mark different groups inexpensively at a young age. We can track their returns as adults and determine which habitats are the most productive."

The mist incubator system was developed by an Alaskan firm and has been used successfully there for a number of years. "In the future, we may be able to use this system to rear Ozette sockeye too," said Hinton. – D.Preston



A bull elk weighs up to about 700 pounds and spends much of its time browsing for food. *Photos: D. Preston*



Development in the Sequim area is forcing the area's iconic elk herd to be moved.



Sequim farmer Gary Smith has experienced significant crop damage caused by elk.

Treaty Tribes Work To Protect, Enhance Elk Populations

Jamestown S'Klallam Tribe Says Moving Sequim Herd Best Solution For Elk, People

Moving the Sequim elk herd is the best way to save it from a slow death by development and help local farmers at the same time. That's the conclusion the Jamestown S'Klallam Tribal Council reached at its January meeting.

"It's disappointing that the city government and developers aren't interested in being sensitive or responsible to wildlife needs," said Ron Allen, tribal chairman for the Jamestown S'Klallam Tribe. "This was not a comforting decision to make, but nobody else is stepping up to tackle this problem and we find ourselves taking the lead."

"It's clear from our review that the city of Sequim's urban growth plan does not accommodate elk," said Scott Chitwood, natural resources director for the tribe.

Sequim's identity is linked to the iconic elk as evidenced by two metal bull elk sculptures at either end of the city limits on Highway 101. But elk have been squeezed out of most of their current range by rapid residential development within the city corridor. The herd rarely strays from a small area of farms north of town where they are causing extensive crop damage. "There's nowhere for them to go," said Jeremy Sage, wildlife biologist for the Point No Point Treaty Council. The treaty council is a natural resource management organization serving the Jamestown S'Klallam and Port Gamble S'Klallam tribes.

The tribal recommendation for moving the herd is supported by the majority of representatives who make up the Dungeness Elk Working Team, which consists of the tribe, Washington Department of Fish and Wildlife (WDFW), Clallam County, City of Sequim, Olympic National Forest and local landowners.

The transfer recommendation was based on the herd's behavior and an examination of development trends in the valley for the past several years. "Most of this year's elk calves were born around farmer's fields to the north of the city rather than in the forests farther south, as they had traditionally been in years past," said Sage. "In their present state, they have very little experience with predators like cougars and little knowledge of what a forest is like. That makes the safety of the fields all the more attractive to them."

The farmers are rarely fully compensated for elk damage by the state, which allows compensation if they allow hunting on their property. "That just drives farmers closer to subdividing and selling their land," said Sage.

Sequim farmer Gary Smith, who supports moving the herd, has experienced significant crop damage from elk. Historically, he only saw the elk in his fields in late summer and then incidentally throughout the winter. Each spring, the elk used to move south across the increasingly congested Highway 101 to reach a forest where calves were born. At that time, damage to farmer's crops was minor.

But, over the past 18 months, the herd's behavior changed. Most of the elk stayed in farmers' fields and, in Smith's case, ate a hybrid cauliflower seed crop valued at \$25,000 and caused another \$24,000 in damage to other crops "Farming is marginal as it is. Those seed crops are what keep us viable," said Smith.

Continued, Next Page

Efforts to scare the elk away have failed. “The elk have figured out they can eat and reproduce well without fear of predators or cars here. This new behavior isn’t likely to change now,” said Smith. “As development continues, using hunting to control the size of the herd will become less of an option because of safety concerns.”

The best place to relocate the herd has yet to be determined. A

way to pay for the transfer must be found and several assessments will be necessary to find the most appropriate spot.

“We’re trying to find a reasonable and affordable solution to this clash of nature and a growing society. We have to find room in our society for the elk too,” said Allen. – D. Preston

Puyallup Tribe Works To Protect Elk Winter Habitat

Every winter a 1,200 head elk herd migrates from upper alpine areas around Mt. Rainier National Park and Mt. Adams to the Cowlitz River valley in search of food around the town of Packwood.

“Habitat in the upper alpine areas, such as the national park and the protected wilderness areas where this herd spends the summer, is the most protected and highest quality summer habitat available,” said Barbara Moeller, wildlife biologist for the Puyallup Tribe of Indians. “Habitat outside those areas is not necessarily protected and may not be as high quality from year to year because forest management limits available food.”

Protecting and improving winter habitat for the south Rainier elk herd is the focus of a new effort by the tribe and the Trust for Public Land, a nonprofit land conservancy organization. One of the reasons the south Rainier elk herd is not considered self-sustainable is because of limited high quality habitat. Currently the herd is declining at a regular pace. To be self sustaining that trend needs to be reversed.

After mapping the elk herd’s winter range, the tribe and the conservation group will approach landowners in the Cowlitz Valley to see if they’re interested in selling conservation easements to protect the herd. Conservation easements are deed restrictions landowners voluntarily place on their properties to protect natural resources.

“Elks’ just use the habitat like they always have if they can get to it. The maps will show us the elk’s favorite places during the winter,” said Moeller. “The only way to make sure this elk herd is strong is for private landowners to have a real hand in their conservation. Elk need good habitat.”



Barbara Moeller, wildlife biologist with the Puyallup Tribe, listens for a radio signal that helps her track the location of elk wintering in the Cowlitz River watershed.

Photo: E. O’Connell

The tribe is using radio telemetry data collected over several years to draw the habitat usage maps for the herd. The tribe keeps as many as 30 animals fitted with radio collars, allowing Moeller to gather monthly data on their movements. “Because we collect this data on such a regular basis, we have a pretty good idea how these elk move through their habitat during the seasons,” said Moeller. That data also lets the tribe keep track of the herd’s health by tracking deaths and survival.

The radio collaring will also help the tribe develop a model that will lead to more accurate population estimates for the herd. The model, one of the first of its kind in western Washington, will allow the tribe to estimate the herd’s size and composition without having to try to actually count each animal.

“Elk depend on the quality of their habitat,” said Moeller. “Protecting habitat is the only surefire way to guarantee that the herd will be healthy in the long run.”

Mount Rainier Elk Fast Facts

- Scientific name: *Cervus elaphus*.
- Elk are part of the same family that includes moose, caribou, mule deer, and white-tailed deer.
- A cow elk can weigh up to 500 pounds and measure 4.5 feet at the shoulder and 6.5 feet from nose to tail. A bull elk can weigh up to 700 pounds and measure 5 feet at the shoulder and 8 feet from nose to tail.
- Generally, elk eat grasses and parts of woody plants in winter; grass in the spring and fall; grass and forbs (low-growing, soft-stemmed plants) in summer.
- Body colors vary from deep copper brown to tan with a beige rump patch. An elk’s legs and necks are often darker than its body.

– E. O’Connell

Mussels Help Tribe Track Water Quality

When people spend hours kneeling on a beach collecting, washing and bagging shellfish, ordinarily the object is dinner.

When researchers from the Stillaguamish Tribe do so, however, it's to promote environmental health and water quality. A new monitoring program the tribe is working on will track pollutants in mussels, providing valuable information to resource managers.

The tribe is partnering with the National Oceanic and Atmospheric Association (NOAA) to create a long-term mussel watch station in Port Susan. Because mussels are so sensitive to contaminants in the water, analyzing their tissues is an effective way to monitor broader trends in the watershed.

"Mussels are a great indicator of all-around habitat health," said tribal biologist Jennifer Sevigny. "Analyzing what's going on in blue mussel tissues gives us a solid snapshot of some of the contaminants present in Port Susan Bay."

Tribal staff began sampling at Camano Island's Cavalero Beach on Feb. 21. Researchers collected 100 mussels and related water quality data from each of three stations at Cavalero County Park. The mussels were then transported on ice and mailed them to Texas A&M and Rutgers universities for analysis.

Among the toxins they're looking for: pesticides, petroleum, hazardous chemicals from fire retardants, mercury and other heavy metals. All of these undermine water quality generally as well as shellfish health. Tribal staff will also monitor for other biological data, such as mussel size, reproductive status and presence of disease or parasites.

"We're interested in long-term trends," said Sevigny. "Monitoring mussels and contaminant issues in Port Susan will give us useful information that we can incorporate into our existing water quality data set."

Stillaguamish crews are working on locating additional suitable mussel populations for study, establishing watch sites, collecting the mussels and sharing information. Once compiled, the data they

gather will be made available on the NOAA Web site.

Adding to collective knowledge about a watershed is a key step in safeguarding that watershed for the future.

"Once we figure out what the potential sources of pollution are, we can start figuring out how better to protect Port Susan," said Pat Stevenson, environmental manager with the Stillaguamish Tribe.

NOAA's Mussel Watch program has been around since 1986, monitoring contaminants in oysters, mussels and sediments. Currently, the program samples over 280 U.S. coastal and estuarine sites.



Mussels provide a good indication of overall water quality.
Photo: J. Shaw

The Stillaguamish Tribe's mussel program is part of their existing contaminant and pesticide monitoring program, which is funded by a federal Environmental Protection Agency grant in the amount of \$110,000 over two years. NOAA is assisting with the sampling process and paying for the analysis. — *J. Shaw*

Generations

Ernest Sampson, Lower Elwha Klallam tribal member, hefts some legendary Elwha River chinook in a picture taken in 1914. Sampson served on the first Klallam Council of 1934. He was the youngest member and served as secretary. He interpreted for his elders who didn't speak English and helped the council understand many of the documents that eventually established the tribe's reservation in 1937. Sampson was an avid photographer and had his own darkroom. *Photo: Lower Elwha Klallam Tribe*



Pollution Could Soon Close Oakland Bay To Shellfish Harvest

Oakland Bay, the nation's leading source of manila clams, may soon be closed to shellfish harvest because of pollution. The Squaxin Island Tribe says that failing septic systems and bad farming practices around the bay are threatening water quality and shellfish populations.

Oakland Bay water quality was barely below the line that would have required several shellfish beaches to be closed due to fecal coliform pollution, according to the state Department of Health. "Oakland Bay dodged a bullet," said Jim Peters, chairman of the Squaxin Island Tribe. "But from the trends we see, the situation out there isn't getting better."

"There are immediate actions that can be taken to reverse the course we're going down," said John Konovsky, environmental program manager for the tribe. In addition to immediately shutting down septic systems that are leaking pollutants into the bay, farming practices can be changed so they don't harm water quality, he said.

"We know that sometimes homeowners may not know their septic systems aren't working; we don't blame individuals for this problem," said Peters. "We all need to step forward together to tackle this issue." The tribe and local shellfish companies, in cooperation with the state Department of Health, have increased monitoring of the bay and pinpointed a few properties as potential sources of pollution.

"We want to work with the county, state and federal governments to solve this problem," said Peters. The county's public health responsibility includes protecting water quality. The state and federal governments are bound by federal and state clean water laws that mandate safe water bodies.

A harvest closure in Oakland Bay would be disastrous for tribal harvesters and would hamstring the local shellfish industry, a vital



Joseph Rivera digs for clams along the southern shore of Oakland Bay, which is threatened by pollution.

Photo: E. O'Connell

part of the Mason County economy. "Tribal members always have depended on shellfish as a source of nutrition, for income and as a way of life," said Peters. "Tribal households depend on shellfish harvest to round out their family incomes and important traditional food."

Private shellfish farmers are among the largest employers in Mason County. "Protecting the environment and clean water is about protecting jobs," said Peters. "Families depend on the shellfish industry here."

A similar closure of Dungeness Bay in Clallam County in 2000 devastated the shellfish industry there. "Even though local officials up there are working hard to open Dungeness Bay, the closure area just keeps getting bigger," said Peters. "Hopefully, we can prevent a situation like that in Oakland Bay."

The Squaxin Tribe has a rich shellfishing tradition. Oakland Bay is a special place for the tribe because it is home to one of the few elders' beaches, a place where tribal seniors can easily access shellfish. "It would be a tragedy if Oakland Bay isn't safe for harvest because nothing was done," said Peters. "We're looking down the barrel of a gun; we need to save this bay." — *E. O'Connell*

Swinomish Legal Battle For Salmon Goes To State's Highest Court

For a decade, the Swinomish Tribe has been fighting a legal battle with Skagit County over environmental policy. In February, the Washington State Supreme Court heard the tribe's case – and the outcome could be pivotal in deciding the fate of endangered salmon.

From the tribal perspective, the county's Critical Areas Ordinance is primarily voluntary in nature and is backed up by vague, weak regulatory measures that mimic existing state law. "The ordinance is simply not supported by best available science," said Lorraine Loomis, fisheries manager with the tribe.

At the core of the complex dispute are several key issues, including whether the county is required to adopt regulatory controls on agricultural practices or whether the reliance on voluntary best management practices is sufficient.

"The decision will dramatically impact how salmon are protected under the Growth Management Act," said tribal attorney Alix Foster. "If the county succeeds, then local governments need only adopt voluntary measures to protect some of the fish functions and to ensure that the status quo does

not worsen – which will cripple the GMA as a tool to protect fish."

The Washington Environmental Council joined the tribe in its fight to protect salmon, along with other conservation groups and respected Scientists. On the county's side are agricultural groups and diking and draining districts.

The high court heard arguments on Feb. 7. A decision may not come for months.

— *J. Shaw*

Device Enables Tribe To Safely Collect Data On Flooding Creeks



Joe Puhn, water quality technician for the Squaxin Island Tribe, deploys a device used to safely collect data from streams that are flooding. *Photo: E. O'Connell*

Even small, peaceful creeks in the summer become dangerous torrents during winter storms. That's why the Squaxin Island Tribe is employing a modern technique to measure stream flows during floods.

"These creeks aren't typically dangerous. Most of the time we can walk up and down them without any fear," said Nadine Romero, the tribe's hydrologist. "Things are different during the winter."

The solution is to suspend a 50-pound, instrument-laden weight – shaped like a World War II-era bomb complete with fins – off a bridge into the stream below. "During the winter if we tried to step into flow like that we would be swept away," said Romero. "This is a safe way to collect data on water velocities."

"The weight carries all of the same instruments that we usually use to collect stream flow information, so our data collection is consistent," said Romero. The aerodynamic design of the weight allows it to be steadily held in the torrent while tribal staff take measurements from the bridge.

Collecting data during winter floods compliments summer fieldwork and is important to understand how stream flows and salmon habitat interact during the year. "Winter high flows can help improve salmon productivity, but too much flooding can wash salmon eggs out of the gravel and accelerate soil erosion," said John Konovsky, environmental program manager for the tribe.

It is a delicate balance and the tribe is concerned that changes in the past few decades, such as urban development and loss of mature forests, have intensified the damaging effects of floods. "Understanding the changing dynamics of winter floods is important if we want to protect and restore salmon," said Konovsky.

Coho salmon, which as juveniles spend more time in freshwater than other salmon species, have been in a steady decline for the past decade in deep South Sound. "The streams that are most harmed by winter flooding are the same small streams that coho call home," said Konovsky.

"If we want to bring back wild coho, we need to have a good understanding about how they survive during floods and how floods have changed," said Andy Whitener, the tribe's natural resources director. – *E. O'Connell*

Because Of Development

Winter Floods Up, Summer Flows Down

Land development along the Deschutes River in Thurston County has increased winter flooding and lowered summer stream flows. "Historically, winter rains would recharge the underground water supply," said John Konovsky, environmental program manager for the Squaxin Island Tribe. "But that doesn't happen anymore."

Using new statistical software called "Indicators of Hydrologic Alteration," the Squaxin Island Tribe recently completed a historical analysis of flows in the river back to the 1940s that shows intensifying extremes during the summer and winter. The analysis points to replacement of forest cover with impervious surfaces – places like parking lots and rooftops where water no longer seeps into the ground – as a primary cause.

"Water flows into the river faster during the winter, worsening floods," said Konovsky. "In turn, water isn't stored underground to slowly seep back into the river during the dry summer months."

While less water is there to be slowly metered out in the summer, more water is also being taken from the ground because more people are living in the watershed. "Demand for irrigation and drinking water in the summer further decreases stream flows," said Konovsky.

The risk to salmon and other wildlife is not simply that the river may run dry, but rather the higher water temperatures that low flows can create. Water temperatures higher than 70 degrees are lethal to salmon. "Shallow water is warm water," said Konovsky. "If fish can't find deep, cool pools, they're going to have trouble."

"Salmon are obviously impacted by the changes in the watershed," said Andy Whitener, natural resources director for the Squaxin Tribe. "Both salmon and people would benefit from fewer floods and more water in the summer."

– *E. O'Connell*

Cooperation Provides Salmon ‘Rest Stops’

More than 20 acres of off-channel habitat have been reconnected to the Puyallup River by tribal and local governments and a non-profit group.

“The best way to think about these newly accessible areas is that they’re rest stops for salmon,” said Russ Ladley, resource protection manager for the Puyallup Tribe of Indians. The tribe joined Pierce County, the Pierce Conservation District, and the South Puget Sound Salmon Enhancement Group (SPSSEG) to complete the effort.

“Salmon need places to get out of the way when the river floods,” said Ladley. This summer, the group reconnected the 18-acre Sportsman’s Oxbow with the river. Last year, four acres were opened up when the 96th Street Oxbow project was completed. The Puyallup Tribe is also planning a third restoration project that will reconnect 17 additional acres of off-channel habitat farther downstream.

“As the winter rains bring higher river levels, juvenile salmon and trout will begin to use the additional habitat,” said Lance Winecka, project manager for SPSSEG. “Salmon have a hard time in the main river channel when there is a lot of fast moving water.”

The projects will especially benefit coho and chinook salmon, and cutthroat, bull and steelhead trout, all of which live in freshwater for extended periods as juveniles.

Puyallup River chinook and bull trout are part of wider stocks listed as “threatened” under the federal Endangered Species Act.

While diking along the Puyallup was intended to prevent flooding, it instead has damaged salmon habitat by worsening floods. “Before the dikes, high winter water was able to spread across the floodplain,” said Ladley. “Now floods are forced to stay between the dikes, increasing the damage they can do. It’s like putting your finger on the end of a hose.”

“Increasing the amount of off-channel habitat will not only restore the natural function of the river, it will mean more salmon returning to the Puyallup River every year,” said Ladley.

Similar off-channel projects on the river, such as moving dikes away from the river banks, help alleviate the shortage of salmon habitat on the Puyallup. “Reconnecting habitat blocked by dikes is the single most important thing we can do to restore salmon on the Puyallup River,” said Ladley.

– E. O’Connell



Contractors piece together a culvert that will connect the Puyallup River with an off-channel wetland to provide refuge for juvenile salmon during floods. *Photo: E. O’Connell*



Frigid Fishing

Sport fishermen angle for a steelhead strike on the Hoh River following a late winter snowfall. Treaty tribal hatchery and wild steelhead management programs provide fishing opportunity for both Indian and non-Indian fishermen. *Photo: D. Preston*

Winter Chum Crucial For Nisqually Tribe

Nisqually winter chum are not only a unique salmon stock biologically but are also a mainstay of the Nisqually Tribe's culture.

Not only are Nisqually winter chum the latest returning chum in the world, they also are one of the largest wild runs of any species of salmon in Puget Sound. "This run has always been crucial for the Nisqually Tribe," said Georgiana Kautz, natural resources manager for the tribe. "We still depend on this run in a very real way both economically and culturally."

About a half dozen Nisqually fisherman smoke their chum for commercial sale, including Kautz's husband, who has been smoking fish annually since 1965. Smoking of salmon is a tribal tradition reaching back centuries.

"Winter chum are the best smoked," said Nugen "Nugie" Kautz, Georgiana's husband. "Because they're so oily, they smoke really well. If you smoke chinook or coho, they can go bad, but chum always stay fresh."

After curing the chum overnight with rock salt, Nugie Kautz builds a fire in his smokehouse and carefully hangs dozens of chum fillets in the eight by ten structure. Using the right kind of wood is essential to properly smoke chum. "I used to only smoke with alder, but the fish would always come out dark," he said.

Newly cut maple is preferable for smoking because it burns slower. "If I'm using the right kind of maple, they can hang there for two weeks," he said.

When Kautz first started smoking chum there wasn't a commercial market. "Back then we just smoked them for ourselves," he said. In the last few years, commercial buyers have been paying as little as 10 cents a pound for chum, but this year they paid 40 cents. "Even if we didn't get a good price, we would still fish. Chum have always been part of our economy, even before we started selling them," said Georgiana Kautz.

Because the wild Nisqually winter chum run is critical to the



Nugie Kautz checks on the dozens of chum salmon hung in his smokehouse. *Photos: E. O'Connell*



Kautz tends a small maple wood fire at the center of his smokehouse.

tribe's economy and culture, protecting and restoring salmon habitat is a priority for the tribe. "Without habitat, these fish wouldn't return," said Georgiana Kautz. "And, without these fish, we would lose a major part of our lives." — *E. O'Connell*



Hutchinson Creek meets the South Fork of the Nooksack River. *Photo: J. Shaw*

Tribes Launch Huge Nooksack River Restoration Project

To save critically endangered salmon and trout, the Lummi Nation and Nooksack Tribe are launching the most ambitious habitat restoration yet attempted on the South Fork of the Nooksack River.

The project, set to take place on the South Fork at the mouth of Hutchinson Creek, will be a tremendous boon to endangered fish and will also protect homeowners from future flooding. The impacts for salmon and trout could be huge, said Lummi Natural Resources Director Merle Jefferson.

“Once we’re done, we’ll have ensured that fish have year-round access to Hutchinson Creek,” said Jefferson. “This will open up spawning habitat and allow fish to reach the cool waters they need for refuge in summer.”

This initiative will be largest-scale salmon recovery project yet attempted on the South Fork, both in terms of size and ecological significance.

By removing portions of certain obsolete dikes, installing large engineered logjams and returning large woody debris to the river system, the tribal initiative will be a major step toward restoring the area to its natural habitat functions.



Alan Soicher, geologist with the Nooksack Tribe, explains where engineered logjams will be situated in Hutchinson Creek.

Photo: J. Shaw

The project, sponsored by the Lummi Nation and the Nooksack Indian Tribe, aims to bring back salmon and trout to self-sustaining levels in the South Fork of the Nooksack River. The work will especially benefit chinook salmon and bull trout, listed as “threatened” under the federal Endangered Species Act.

The project has taken years of planning, cooperation and negotiation. But it will all be worthwhile given the work’s significance, said Bob Kelly, director of Nooksack Natural Resources.

“Making sure wild salmon and trout continue to survive in the Nooksack River takes time, effort and vision,” said Kelly. “We’ve had this vision for several years, and it’s gratifying to see the time and effort we’ve put into this project are about to pay off.”

‘We are developing a project design that will provide the best benefit to fish without any tradeoffs. . .’

– Bob Kelly
Director,
Nooksack
Natural Resources

Habitat professionals determined in 2004 that Hutchinson Creek was the highest priority area for potential restoration projects in the area.

Hutchinson Creek represents one of the Nooksack River’s most important spots for fish. It is one of the river’s largest tributaries and provides crucial spawning and rearing habitat for multiple species of salmon and trout.

Residents had been concerned that removing parts of dikes could increase the risk of floods. But scientists say the opposite is true: replacing the outdated dikes with wood structures will provide more protection than currently exists.

“We are developing a project design that will provide the best benefit to fish without any tradeoffs, like increased flooding,” said Kelly. “The project will be designed to not increase risk to homeowners and local farms.”

Besides budgeting significant dollars toward comprehensive studies of the watershed, project planners considered more than a dozen different alternative construction plans to ensure that the best option was selected. Additionally, the tribes held a series of meetings with citizens, involving the surrounding communities at every step in the process. – J. Shaw

Quinault Indian Nation, State Team Up For 5-Year Clam Study

Ocean waves pound the beach and wind-driven spray chills the fingers of Quinault Indian Nation (QIN) shellfish biologist Kelly Curtis and tribal technicians on a winter day near Ocean Shores. The crew is out completing a winter razor clam survey as part of a five-year cooperative effort by QIN and Washington Department of Fish and Wildlife (WDFW) to improve estimates of natural razor clam mortality that could allow increased harvest.



A young razor clam.

Razor clams are important to QIN both culturally and economically. Culturally, razor clams have been a part of tribal diets and ceremonies for thousands of years. QIN is also the only Washington tribe that has a commercial razor clam enterprise, a small but vital supplement to tribal incomes. QIN and WDFW cooperatively manage the razor clam resource on beaches within the nation's treaty-reserved harvest areas.

"While we've been doing this razor clam mortality survey for several years now, you really can't draw any conclusions from the data until we've done the whole five years," said Joe Schumacker, operations section manager for QIN Fisheries. A razor clam's life span is typically four years. The study will record the death rates of all ages of clams through one life cycle on both beaches that are harvested and a control beach where no harvest is allowed.



Cliff Sampson, fisheries technician for Quinault Indian Nation, pumps water into the sand to raise clams to the surface near Ocean Shores as part of a clam mortality survey.

Photos: D. Preston

The tribe and state use a hydraulic method to count clams and the results are used to set harvest limits. Water is pumped through a hose in the sand to force all the clams in the sample area to the surface. All of the clams are counted, then returned after their size and population density is recorded.

The mortality study is aimed at answering when and at what size clams die. A result might be increased harvest if the study shows a large die off of clams each year, meaning it's a use them or lose them scenario.

Population surveys are conducted in the summer, but a winter mortality survey was added this year to give the co-managers another snapshot of clam die-off during the year. The mortality study, in combination with a study of growth rates of razor clams by the WDFW, will yield the most complete information about razor clams in decades.

— D. Preston

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